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INDIVIDUAL INNOVATIVE USE OF ERP SYSTEMS

Research in Progress

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Abstract

Although many studies have discussed Enterprise Resource Planning (ERP) use at the organizational level, no study according to our knowledge, has identified the factors influencing innovative use of ERP by the end users (Sudzina, 2010). This research-in-progress paper describes the preliminary findings of a survey, which is designed to recognize the factors which can influence the end user innovative use of ERP systems. Moreover, this study argues that the innovative use on individual levels could impact the productivity of organizations.

Keywords: Innovative use, Individual level, ERP systems, Productivity

1 Introduction

Due to high levels of competition from industry, many organizations turned to Enterprise Resource Planning (ERP) systems to gain advantages in the market by performing better via saving resources and responding to challenges from the environment (Ptak and Schragenheim, 2003, Schniederjans and Yadav, 2013, Carroll, 2010, Anonymous, 2005). However, many organizations still have issues in installing or implementing ERP systems and receiving anticipated benefits (Sedera et al., 2013). Bradford and Florin (2003) depicts that "while some companies have achieved significant efficiencies through ERP, others have complained of failed implementations, budget over runs and disappointing performance". According to Abdinnour-Helm (2003) , ERP implementation can be divided into two parts; 1) user involvement; which is the critical part in evaluating ERP implementation success and, 2) technical system involvement; which ensure the interaction between technology and the organization.

The ERP implementation success necessitates a choice of mechanisms which include organizational strategies and management's expectations both from organisational level and individual level. The organisational level considers company as a single entity whereas at individual level, end-users have been considered as a single entity. Generally, these two entities determine whether an ERP system is needed and, once implemented, whether it will be successful. Despite the huge investment by companies in ERP system implementations, optimum utilisation of the system by the end-users' is a major factor for success of ERP systems. This is also explained by Bendoly and Jacobs (2004) that end-users' use of ERP system as a subjective measure of ERP success. Therefore, organisations need to optimise the utilization of ERP systems by individual users, while on a company level only focus on the integration of enterprise's process, data and profit creating aspects of ERP systems. "Even though there is a growing body of literature that focus on improving the success rate of ERP projects, there is a lack of research aimed at understanding end-users perceptions of ERP systems" (Akbulut and Motwani, 2005).

Many studies have been conducted to study information systems' use (Burton-Jones and Gallivan, 2007, Sarter and Amalberti, 2000, Sedera and Tan, 2007). Information system use can be defined as an activity that has three segments: 1) a user, 2) a system 3) a task (Burton-Jones and Gallivan, 2007, Burton-Jones and Straub, 2006). Generally, the user is referred to as the 'subject' using the Information System (IS), the system is the object being used and a task is the function being used (Burton-Jones and Straub, 2006, Burton-Jones and Gallivan, 2007). In our study, ERP is considered to be the system being used. In fact, if an ERP system is utilised well by individual users, it can have a positive impact on end-users' performance (Dennis et al., 2001). With regard to system use, it can be classified into two types: 1) routine use, 2) innovative use (Burton-Jones and Straub, 2006, Li et al., 2013). The routine use is referred to the standard usage, where ERP is used in a routine manner (Saga and Zmud, 1994, Li et al., 2013). On the other hand, the innovative use includes users approaching systems more mindfully to get more out of complex systems and therefore delivering more benefits to the organizations (Ahuja and Jason Bennett, 2005, Li et al., 2013, Luo et al., 2012). Li et al. (2013) defines innovative use as "employees' discovering new ways to use IS to support their work" (p.659). Accordingly, we define innovative use of ERP systems as "employees' discovering new ways to use ERP systems to support their work". Generally, users enrich innovative level after gaining first hand use experience of ERP. As a result, users can perform their work using ERP system in novel ways and by exploring new ways of doing tasks in the ERP (Li et al., 2013). As a matter of fact, ERP use can vary between the routine use and the innovative use in a certain workday. Moreover, ERP system use may vary between employees based on the tasks' complexity they are performing (Li et al., 2013). In fact, innovative use of ERP systems on individual level would reduce the cost and time, which directly improve the productivity of organizations (Laughlin, 1999; Bradford & Florin, 2003). Enhancing the productivity would be the final aim for every organization, which includes the increased product/ service quality and customer service (Palekar and Sedera, 2013).

In order to gain competitive advantages, modern organisations have to improve not only ERP system utilisation, but also the innovative use of ERP systems. Therefore, this research-in-progress paper reports our early observations of a preliminary survey designed to identify the influencing factors for individual's innovative use of ERP systems. In particular, this paper discusses methods to improve the innovative use of ERP systems and the effect of innovative use of ERP systems to organizational productivity. Hence, our driving research questions attempt to address 1) "What are the influencing factors for innovative use of ERP systems?" and, 2) "How does innovative use of ERP impact organizational productivity?". The second phase of this research is still in progress at the time of submission. The analysis and recommendations presented here are preliminary; however they provide insight into the landscape of the individual level innovative use of ERP systems.

2 Literature Review

ERP implementations cause changes to most of business processes such as financial, human resource and supply chain (Ferrell and Sheridan, 1967, Everdingen et al., 2000, Buonanno et al., 2005). Specifically, according to Rajagopal (1967), organisations identified that after implementing ERP systems, they achieved "end-to-end" connectivity and brought various functions and divisions together, which helped the company run smoothly and were able to be managed much easier. From basic activities to monitoring headquarters, the integration embodied efficiency and improved cross-functional coordination among different departments in the organisation. In another words, integration of ERP system could play a key role in different departments which are from end user level to top management level. In terms of business process, implementing ERP systems would improve the efficiency of decision making process. Furthermore, ERP systems help organisations with business process re-engineering and performance measurements. According to Askenas (2003), Enterprise systems influence the users in five different ways; 1) Bureaucrat; which strictly follow the rules and principles, rather than making individual considerations, 2) Manipulator; directs or influences users in a way that is not entirely of the user's choice, 3) Consultant; perform specific, nontrivial tasks, and advise, 4) Administrative assistant; who takes care of less complicated tasks in an orderly way and 5) Dismissed; someone who temporarily has been dismissed from work, but may be reinstated at some later point in time. Lengnick-Hall et al. (2004) have discussed that ERP implementation has significant implications beyond operational efficiency, which impacts firm's business processes, culture and social system.

Several studies have discussed the challenges of adopting new ERP systems into organisations (Glover et al., 1999, Caruso, 1999, Grant, 2003, Salim, 2013). According to Marler et al. (2006), many users resist using ERP systems or they fail to effectively use ERP systems. One of the factors is that users are concerned about changing the system because the setup might go wrong and raise unpredictable errors that may impact daily business processes (Rikhardsson and Kræmmergaard, 2006). Likewise, Aladwani (2001) suggested that users' resistance could be due to the habit they created over years in using the existence legacy systems. Moreover, Rikhardsson and Kraemmergaard (2006) highlighted that a short implementation time increases the possibility of users' resistance. Users' resistance is not only limited to the ERP implementation phase but also resistance can arise at post-implementation. Some users reject the change and choose to return to their old positions after being involved in ERP implementation as they have spent years in their respective positions (Rikhardsson and Kræmmergaard, 2006). Based on this, Umble et al. (2003) suggested that preparing people for ERP implementation can minimise user's resistance. In order to prepare users, Sue Abdinnour-Helm (2003) suggested that organisations should initiate a specific structure for ERP projects. On the other hand, organisational management is one of the critical success factors of ERP implementations. Many researches have discussed the role of organisational management in ERP implementation success (Eden et al., 2012). Umble et al. (2003) suggested that generally excellent change management techniques maximise the benefits of ERP systems. Moreover, Umble et al. (2003) discussed that one of the problems related to change management is the way senior executives deal with ERP

implementations, where they observe ERP implementation as only a technological challenge without changing organisational business operations. The goal behind ERP project is not to implement a new system but also to improve business processes in different departments in the organisations (Umble et al., 2003). Similarly, Law and Nagi (2007) emphasize the importance of the engagement of senior managers for the success of ERP implementations. Moreover, there are different organisational issues like lack of top management support, change in business processes for ERP implementations (Arnold, 2006).

According to Laughlin (1999) and Bradford and Florin (2003), the innovation of ERP systems would minimise costs and time while improving productivity, product quality and customer service. Mandal and Gunasekaran (2003) states that "most of the other modules of SAP were relatively mature and had been extensively refined in other organizations, the Project System module was the least developed and had never been used to this extent" (pa. 278). Therefore, there is a higher probability of users exploring for innovative use of project System module compared to other modules. Likewise, the level of innovative use of ERP system can vary according to the modules.

Sauer (1993) has developed a model for the innovation of organisations. In fact, the model focuses on the context of the organisation. Particularly, it considers the context to be a strong factor in the innovation process. The organisational context has been classified to cognitive limits, technical processes, the environment, politics, structure and the history. This paper is built on this model and examines the influencing factors for individual level innovation which is discussed in detail in the next section.

3 Model Description

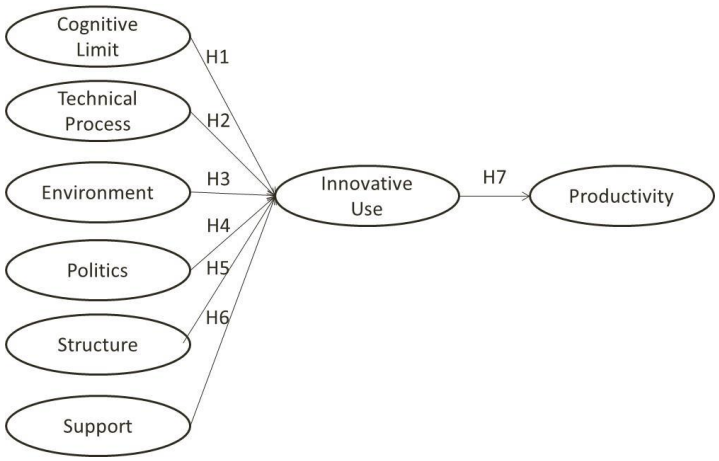

Figure 1:Conceptual Model

According to Sauer's model (1993), organisational contextual factors such as cognitive limits, technical processes, organisational environment, politics, structure and the history influence the innovative use of ERP systems.

Cognitive limits: According to Sauer's model (1993), cognitive limits include limits on attention, limits in conceptual understanding, limits in logical skills and limits in memory. Limit in attention is referred to the limit in focusing on some activity. In other words, the attention is the state where the user finds a certain activity so satisfying that the individual wants to repeat the activity continually (Choi et al., 2007). Individual can reach to a level of concentration where he/she focuses completely on a particular activity and neglects anything else in the surrounding environment. According to Choi (2007),

attention has a huge impact on ERP use. That is, the more the user has limits in attention the less he/she will have ability to learn new tasks in ERP. In addition, the limits can include soft skills limits such as lack in communication skills between ERP users. Umble, et al. (2003) encourages communication between ERP users as technical knowledge (Nuwangi et al., 2012) can be transferred by communicating with other users and sharing experiences among them. Furthermore, understanding the ERP system is very important for the innovation process. Lack of ERP system understanding may affect the innovative use negatively. Based on these we have derived our first hypothesis, which propose that cognitive limits have a negative impact on innovative use.

H1 : *Cognitive limits have a negative impact on innovative use*

Technical Process: Sauer (1993) categorises the technical process into three characteristics, 1) constraints drawn from computer based systems, 2) constraints of unplanned events and 3) systems complexity. In the first characteristic, organisations should make sure the system is configured easily and automatically. In other words, the ERP system should be compatible with the hardware and software available in the organization so that the user can execute the system automatically. Chang et al. (2008), highlighted that the compatibility of ERP systems with users' hardware and software can be a strong factor of users acceptance of the ERP system. Secondly, the organisations have to specify the unplanned events as much as possible before they occur. On the other hand, the anticipated events should be all specified (Sauer, 1993). Thirdly, system complexity can be defined as the relationship between the system's components which is usually the network. Modularization of complex systems and identifying effective ways to deal with the chaotic and emergent characters of complex systems may increase the innovative use (Ethiraj and Levinthal, 2004, Berggren et al., 2008). In general, the complexity has a negative effect to the ease of ERP use (Chang et al., 2008). According to these we derive our second hypothesis;

H2: *Technical processes have a negative impact on innovative use*

Environment: The environment is the different components surrounding the ERP users. Customers, regulators, and national government officers all can be considered as part of the environment. The environment can produce different types of changes and contingencies which may affect the innovative use. It is important to align the environment like management, vendors, implementation team and the users into one goal (Nuwangi et al., 2013a) to achieve the maximum benefit of the ERP systems (Umble et al., 2003). Also, they suggest that if any part of the environment is producing conflicts about the organisation's goal, they should receive adequate assistance or should be replaced. Similarly, Sue Abdinnour-Helm (2003) emphasizes the importance of aligning environment's goal into one direction by planning the roles of the ERP vendor and internal resources in the ERP pre-implementation phase. As a result, the organisation would have a clear picture about the role of each division and clear goals for all parties participating in the ERP project. As it can be seen, the more the organisation puts the goals of each part of the environment aligned the more they encourage users to use ERP innovatively.

H3: *Environment has positive impact on innovative use*

Politics: According to Sauer (1993), political issues include three aspects; 1) problem-solving mechanisms which help organisations run smoothly, 2) outside effect such as government policy on ERP systems and top management rules would affect the innovative use of ERP and 3), competition between different departments which have an impact on ERP systems. Political issues can limit the innovative use in case of the existence of political conflicts, which can lead to unplanned events in the environment. According to these we derive our fourth hypothesis;

H4: *Politics has negative impact on innovative use*

Structure: The structure of the organisation or sub unit affects the ERP innovative use because it affects the method which ERP users communicate with each other. It can affect the business process

by defining new rules that the ERP system should follow. Umble et al. (2003) suggest that ERP implementation team members should be selected carefully to insure the existence of effective information for ERP users. Proposing incentives for users who perform well in using ERP may encourage people to use ERP more in their daily work and enhance the innovative use. Kennerley and Neely (2001) suggested that adopting the idea of incentives to users may result in encouraging many users from the organisation from different hierarchal levels to use ERP. Moreover, Dezdar and Sulaiman (2011) highlighted the importance of communication between ERP users because it reduces user resistance and encourages individuals to use ERP. Particularly, organisations should communicate not only the instructions to conduct functionalities using ERP system, but also the benefits of ERP to encourage them to use it innovatively (Aladwani, 2001). Accordingly, we derive our next hypothesis;

H5: *Structure has a positive impact on innovative use*

History: The history represents the record of constraints changing overtime. The purpose is to keep track of the events. For example: "an earlier agreement not to attempt to automate a particular activity may fit a limit on what is considered for automation later date" (Sauer, 1993). This factor is excluded from this research as it needs subsequent analysis of longitudinal data, which is not feasible using the survey method.

Support: Supporting users is a critical issue in terms of innovative use. Generally, users need support to overcome knowledge barriers (Nuwangi et al., 2013b) and difficulties in using ERP (Luo et al., 2012). Organisations can provide different types of support like training (Marler et al., 2006, Chang et al., 2008, Dezdar and Sulaiman, 2011, Choi et al., 2007) and information provision (Chang et al., 2008). ERP innovative use could be more challenging if organisations have limited support and hence users will not be willing to perform new tasks using the ERP system (Scott, 2005, Marler et al., 2006, Chang et al., 2008). In consequence, we derive our next hypothesis;

H6: *Support has a positive impact on innovative use.*

Generally, organisations utilize ERP systems to integrate all their information technology resources under one package. As a result, organisations can share data easily among internal and external users like customers, suppliers and partners (Aladwani, 2001). According to King and Burgess (2006), improving the innovative use in ERP systems increases the organisations' productivity. Accordingly, we derive our next hypothesis;

H7: *Innovative use has a positive impact on organizational productivity*

4 Methodology

We operationalized the study model using the data from an online survey at one of the popular exploration and production companies in the Gulf. The company operates in a privileged area of about 100,000 km^2 including 126 producing fields and more than 5000 producing wells. The SAP system was adopted by the company in 2001. The company employs about 6000 employees. More than half of the employees are using SAP system (3500 staff). The company is using SAP to accomplish different business activities like: human resources transactions, project management, finance, controlling and logistics activities. In addition, The company has gone through one ERP system upgrade in 2012 and it is currently using ECC6 version of ERP system. Fifty one (51) responses were collected from the different levels of employees in the company. Thus, 2 responses from departmental managers, 2 responses from assistant managers, 26 from professional staff, 12 responses from technical staff, 2 from front line operators and 7 from other positions in the organization. Participants experience level with ERP varied. Hence, 20 employees with more than 7 years of experiences, 2 employees with 6-7 years, 12 with 2-3 years, and 17 with less than 2 years responding to the survey.

5 Testing the Research Model – Pilot Survey

In this paper, we used the partial least square (PLS) technique using SmartPLS 2.0 (Ringle et al., 2005) software to evaluate the factors affecting the individual innovative use of ERP systems and the impact of innovative use to productivity of organizations. PLS analysis provides the ability to test the properties of the scales used to measure a variable/s in a measurement model (Xu et al., 2011) and PLS would help information systems researchers frequently test for the existence and strength of interaction effects between constructs measured with multiple items (Goodhue et al., 2007).

To check individual item reliability, we checked the individual measurement items on the respective constructs against the recommended tolerance value, which is 0.60 (Frank, 1990, Atapattu and Sedera, 2013, Sarter and Amalberti, 2000, Sedera and Tan, 2007) (Appendix A). Moreover, we tested discriminant validity of the constructs indicators (Cheryl Burke Jarvis et al., 2003) (see Appendix A). Then we checked for composite reliability and Cronbach's alpha (Appendix B) to check whether internal consistency of the constructs are above the recommended tolerance value of 0.70 (Ni et al., 2011). Some measurement items were less than recommended tolerance value, indicating issues in the measurement items. As this is based on the pilot test, we intend to revise our measurement items based on the current analysis. PLS analysis was utilized to identify the strength of the relationship between constructs (refer figure 2).

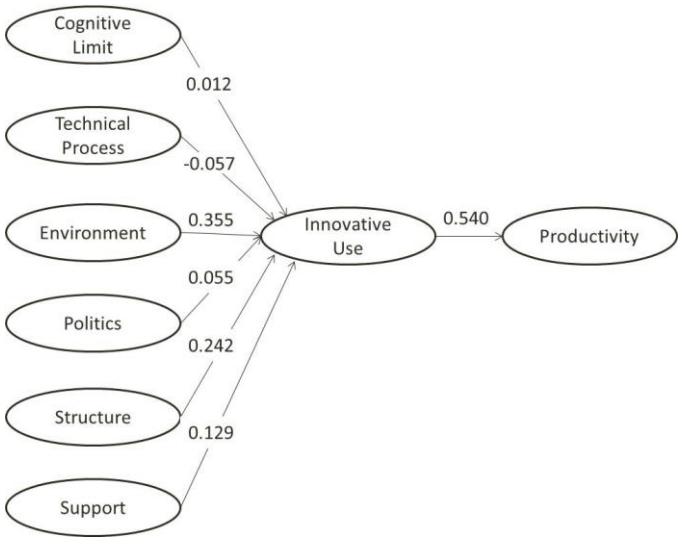

Figure 2: PLS analysis of the model

According to the analysis, cognitive limit, environment, politics, structure and support show a positive relationship with individual innovative use of ERP systems on the individual level while technical process shows a negative relationship. Furthermore, innovative use shows a positive relationship with productivity as well.

6 Discussion

Innovative use has been identified as an important factor to improve the productivity of the organizations. It is believed that this is the only study to have observed individual innovative use of ERP systems. Our conceptual model helps researchers understand the factors affecting individual

innovation use of ERP systems and the relationship between innovative use and organizational productivity. We extend current research on innovative use of ERP systems at the organizational level (Sauer, 1993) to individual level.

In this study we have conducted a pilot survey to examine the factors affecting the individual innovative use of ERP systems. According to the analysis, most of the hypotheses were supported by the findings. Moreover, the analysis support that organization's productivity increases when individuals use ERP innovatively. Correspondingly, the analysis supports our second hypothesis (H2) by showing a negative relationship between the technical process and the innovative use. Therefore, in order to encourage ERP innovative use, the finding suggests that organizations should make ERP configuration easier. In addition, they should try to plan for unexpected events as much as possible. Also, they should minimize complexity of ERP systems. Similarly, the third hypothesis is supported by the analysis as it shows a positive relationship between the environment and the innovative use. Thus, it is suggested that organizations should pay attention to align the goals of environmental elements (e.g. customers, regulators) (Palekar et al., 2013), in a single direction to make it easier for individuals innovative use of ERP systems. The analysis also shows a positive impact of the organization's structure on the innovative use. In other words, it is suggested that organizational structure which encourage communication between individuals, will increase individuals' innovative use of ERP systems. Moreover, the analysis suggests positive impact on the support provided to users. Although organizational support is very important for ERP use, many organizations under estimate, which may result in creating difficulties in ERP use (Scott, 2005). The analysis also highlights that cognitive limits have a positive impact on the innovative use which is opposite to what has been discussed in H1. As it has been mentioned earlier the cognitive limits may include limits in attention, logical skills, soft skills and conceptual understanding. The reason behind this could be due to the fact that Sauer's model is used to evaluate the innovative process based on organizational level and our research is examining the innovative use at the individual level. Conversely, the analysis suggests a positive impact of politics on the innovative use which is opposite to our hypothesis, H4. In other words, the more individuals experience competition with other teams in the organization, or experience more outside effect like government policy or conflicts in problem solving mechanisms the more they tend to explore new ways of using ERP.

Our preliminary study findings have the potential to influence the practice. First, our conceptual model allows practitioners to understand the factors which influence the individual innovative use of ERP systems. Second, our study helps to identify the factors such as technical process, which negatively impact on the individual innovative use. Organizations should take necessary actions to minimize the influence of those factors on the innovative use. Third, our study shows that the innovative use of ERP systems increase the organizational productivity.

Based on our preliminary findings, currently we are in the process of designing the final survey for the data collection. The intention of the final survey is to validate the findings, which were derived from the preliminary survey.

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Appendix A: Loading and Cross Loading measures

	Construct Loadings							
item	Cognitive limits	Technical process	Environment	Politics	Structure	Support	Innovative use	Productivity
1 Cognitive limits1	**-0.2945**	0.1032	-0.3098	-0.1879	-0.0583	0.0293	-0.1525	-0.1743
2 Cognitive limits2	**0.8419**	-0.7222	0.5766	0.5812	0.2903	0.5394	0.3803	0.407
3 Cognitive limits3	**0.8727**	-0.5935	0.6159	0.5332	0.3865	0.5997	0.5017	0.6247
4 Technical process1	0.0109	**-0.0983**	-0.1063	0.0622	0.0295	0.2114	0.1851	0.0266
5 Technical process2	0.7123	**-0.7534**	0.5511	0.5847	0.2408	0.4829	0.3795	0.3119
6 Technical process3	-0.3736	**0.7278**	-0.2165	-0.3746	-0.1887	-0.2502	-0.2195	-0.2044
7 Technical process4	-0.5856	**0.8376**	-0.3457	-0.3964	-0.3903	-0.4311	-0.3278	-0.3511
8 Technical process5	-0.528	**0.7456**	-0.3476	-0.4611	-0.4126	-0.407	-0.2985	-0.5176
9 Environment1	0.7124	-0.4735	**0.999**	0.6002	0.305	0.5079	0.5755	0.516
10 Environment2	0.0559	-0.1196	**0.1872**	0.2127	0.0171	0.0604	-0.0265	-0.0821
11 Politics1	0.3961	-0.4027	0.4848	**0.7507**	0.4823	0.4553	0.3897	0.464
12 Politics2	0.2419	-0.2819	0.1779	**0.2837**	0.0043	0.1774	0.1699	0.085
13 Politics3	0.2408	-0.105	0.3012	**0.4911**	0.0442	0.0995	0.2057	0.0565
14 Politics4	0.5999	-0.5758	0.4268	**0.7862**	0.4473	0.544	0.4227	0.3619
15 Structure1	0.4019	-0.3964	0.3205	0.5846	**0.6677**	0.4238	0.4058	0.4458
16 Structure2	-0.0447	-0.0289	-0.0757	0.0611	**0.6119**	0.1864	0.2022	0.2759
17 Structure3	0.2274	-0.2185	0.1423	0.2309	**0.8111**	0.3347	0.3708	0.6018
18 Structure4	0.0814	-0.1504	-0.0414	0.2391	**0.7103**	0.3133	0.2367	0.2756
19 Structure5	0.4588	-0.4299	0.496	0.4043	**0.5718**	0.5761	0.336	0.4709
20 Support1	0.5652	-0.4911	0.5968	0.5293	0.525	**0.8037**	0.4958	0.5784
21 Support2	0.3249	-0.3357	0.258	0.3445	0.3371	**0.5589**	0.3099	0.2403
22 Support3	0.4744	-0.3907	0.3596	0.5469	0.456	**0.8389**	0.3767	0.399
23 Support4	0.6292	-0.5894	0.4581	0.4898	0.4416	**0.8932**	0.4922	0.5063
24 Support5	0.3215	-0.2806	0.1712	0.3288	0.4262	**0.734**	0.2941	0.3724
25 Innovative use1	0.4149	-0.2471	0.4165	0.3016	0.4407	0.6263	**0.5994**	0.5983
26 Innovative use2	0.3876	-0.4449	0.4136	0.3916	0.3289	0.3079	**0.8125**	0.4389
27 Innovative use3	0.4237	-0.4437	0.5297	0.5106	0.388	0.421	**0.8849**	0.4804
28 Innovative use4	0.4332	-0.394	0.5226	0.4881	0.4067	0.4166	**0.8786**	0.5816
29 Innovative use5	0.3797	-0.1597	0.3702	0.3177	0.3044	0.2014	**0.7552**	0.345
30 Productivity1	0.3101	-0.1305	0.4235	0.387	0.412	0.3288	0.5391	**0.7285**
31 Productivity2	0.6149	-0.4348	0.4667	0.3598	0.6227	0.5316	0.5423	**0.91**
32 Productivity3	0.572	-0.4776	0.5072	0.4243	0.6873	0.5049	0.6038	**0.9496**
33 Productivity4	0.5855	-0.4077	0.3996	0.4146	0.5948	0.5561	0.5899	**0.941**
34 Productivity5	0.6408	-0.5558	0.5305	0.4732	0.5404	0.5721	0.5587	**0.8948**

Table 1. Loading and Cross Loading measures

Appendix B: Internal consistency and discriminant validity construct

	AVE	Composite Reliability	R Square	Cronbachs Alpha	Communality	Redundancy
Item						
1 Cognitive limits	0.5191	0.5830	0.0000	0.2518	0.5191	0.0000
2 Technical process	0.4729	0.4469	0.0000	0.1114	0.4729	0.0000
3 Environment	0.5165	0.5927	0.0000	0.3760	0.5165	0.0000
4 Politics	0.3759	0.6816	0.0000	0.4222	0.3759	0.0000
5 Structure	0.4619	0.8087	0.0000	0.7123	0.4619	0.0000
6 Support	0.5997	0.8799	0.0000	0.8266	0.5997	0.0000
7 Innovative use	0.6289	0.8928	0.4622	0.8472	0.6289	-0.0081
8 Productivity	0.7893	0.9489	0.4097	0.9307	0.7893	0.3204

Table 2. Internal consistency and discriminant validity construct